

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: James J. Alwan et al.

Serial No.:

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For: CAP LAYER ON GLASS PANELS FOR IMPROVING TIP UNIFORMITY IN
COLD CATHODE FIELD EMISSION TECHNOLOGY

Examiner: M. Day
Group Art United: 2215

Assistant Commissioner for Patents
Washington, D.C. 20231

PRELIMINARY AMENDMENT

This Preliminary Amendment is submitted in the above identified application and Applicants respectfully request that it be entered before the application is examined.

In The Claims

Please cancel claims 1-10, 19, 20, 29, and 30, without prejudice.

Please rewrite claims 11 and 21 as follows:

11. (Amended) An improved cathode substrate for a field emission display comprising:
- a substrate;
 - a cap layer disposed on said substrate; [and]
 - an anti-reflective coating, with the anti-reflective coating being associated with the cap layer; and
 - an array of emitter tips formed on said cap layer with the associated anti-reflective coating on said substrate.
21. (Amended) An improved cathode substrate for a field emission display formed by the steps of:

providing substrate;
depositing a cap layer disposed on said substrate; [and]
associating an anti-reflective coating with the cap layer; and
forming an array of emitter tips on said cap layer with the associated anti-
reflective coating associated therewith said substrate.

Please add new claims 31 and 46 as follows:

- 31. An improved cathode substrate for a field emission display comprising:
a substrate;
a cap layer that has a light blocking layer associated therewith, the cap layer with
the associated light blocking layer being disposed on said substrate; and
an array of emitter tips formed on said cap layer with the associated light blocking
layer, the cap layer with the associated light blocking layer being disposed on said substrate.--
- 32. An improved cathode substrate according to claim 31, wherein said substrate is a
soda-lime glass.--
- 33. An improved cathode substrate according to claim 31, wherein said cap layer is
deposited on said substrate by plasma enhanced, chemical vapor deposition.--
- 34. An improved cathode substrate according to claim 31, wherein said cap layer has
a thickness in the range of 0.1 to 0.5 microns.--
- 35. An improved cathode substrate according to claim 31, wherein said cap layer is
selected from the group consisting of silicon dioxide, silicon nitride, silicon carbide, and
diamond-like carbon.--
- 36. An improved cathode substrate according to claim 31, wherein said substrate is
plastics material.--
- 37. An improved cathode substrate according to claim 31, wherein said substrate is a
non-conductive material.--
- 38. An improved cathode substrate according to claim 31, wherein said substrate is
leached prior to deposition of said cap layer.--
- 39. An improved cathode substrate for a field emission display formed by the steps
of:
providing substrate;

depositing a cap layer with an associated light blocking layer on said substrate;
and

forming an array of emitter tips on said cap layer with the associated light
blocking layer on said substrate.--

--40. An improved cathode substrate according to claim 39, wherein said substrate is a
soda-lime glass.--

--41. An improved cathode substrate according to claim 39, wherein said cap layer is
deposited on said substrate by plasma enhanced, chemical vapor deposition.--

--42. An improved cathode substrate according to claim 39, wherein said cap layer has
a thickness in the range of 0.1 to 0.5 microns.--

--43. An improved cathode substrate according to claim 39, wherein said cap layer is
selected from the group consisting of silicon dioxide, silicon nitride, silicon carbide, and
diamond-like carbon.--

--44. An improved cathode substrate according to claim 39, wherein said substrate is
plastics material.--

--45. An improved cathode substrate according to claim 39, wherein said substrate is a
non-conductive material.--

--46. An improved cathode substrate according to claim 39, wherein said substrate is
leached prior to deposition of said cap layer.--

Remarks

Applicants are submitting this Preliminary Amendment to respond to the Order rendered
by the Board of Appeals Interferences on June 9, 2001. In light of this Order, Applicants have
amended the claims to clarify them to make clear the features of the present invention.

Claims 11-18, 21-28, and 31-46 will be pending in the present application once this
Preliminary Amendment has been entered. In the Preliminary Amendment, Applicants have
amended the claims to set forth the relationship of the anti-reflective coating and the light
blocking layer with regard to the cap layer. Further, Applicants have amended the claims to
overcome the enablement and indefiniteness rejections based on 35 U.S.C. § 112, first and
second ¶¶, and provided support to overcome the enablement rejection under 35 U.S.C. § 112,

first ¶. Accordingly, the present application is in condition for allowance and it is requested that it pass to issue in due course.

The Examiner rejected claims 11-18, 21-28, and 31-46 under 35 U.S.C. § 112, second ¶, for indefiniteness because the claims did not properly recite the relationship between the anti-reflective coating or the light blocking layer, and the cap layer. However the claims have been amended to recite that the anti-reflective coating or light blocking layer are “associated with” the cap layer. This amendment is within the scope of the present invention and does not add new matter. As such, the indefiniteness rejection is overcome and it is respectfully requested that it not be raised in this application.

The Examiner also rejected claims 11-18, 21-28, and 31-46 under 35 U.S.C. § 112, first ¶, for non-enablement based on the recitation of the relationship of the anti-reflective coating and light blocking layer. As indicated above, the claims have been amended to recite that the anti-reflective coating and the light blocking layer are “associated with” the cap layer. This clarification enables the claims and traverses the rejection under § 112, first ¶, and Applicants request that it not be raised in this application.

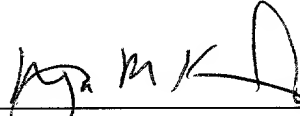
The Examiner rejected claims 18, 28, 38, and 46 under 35 U.S.C. § 112, first ¶, because it is contended that leaching of the substrate is not sufficiently described. In the past, Applicants have argued that “heat leaching” was known by those skilled in the art. The Board sustaining the Examiner’s rejection: the only leaching of which the Examiner was aware was leaching with a liquid. Applicants have enclosed U.S. Patent Nos. 6,063,690 and 6,059,887 that support Applicant’s position that heat leaching is known. In particular, the ‘690 patent at col. 5, lines 43-57 discusses heat leaching with respect to silicon substrate. The same type of process, although the specific word “leaching” is not used, is described in the ‘887 patent. Accordingly, Applicants submit that the rejection of claims 18, 28, 38, and 46 is traversed and should not be raised in this application.

Noting the foregoing, the present invention is new, non-obvious and useful. Applicant has overcome each of the Examiner’s grounds of rejection and respectfully request that the application be passed to issue in due course.

If there are any questions, please call the undersigned at the telephone number indicated below.

Dated: July 20, 2001

Respectfully submitted,



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